IN THE CLAIMS

1. (Previously presented) A method for evaluating the quality of coded images, the method comprising:

a) processing a signal representative of an image so as to obtain a processed signal,

b) constructing, a motion vector field by estimating motion between image sequences in the signal representative of the image to get velocity vectors,

c) segmenting the motion vector field according to a motion value of the velocity vectors to get regions,

d) determining a psychovisual human filter to be applied as a function of an estimated velocity of each region,

e) psychovisual filtering the processed signal, and

f) constructing a map of disparities between the signals representative of the image which are obtained after the psychovisual filtering step and signals representative of a decoded image which are obtained after the psychovisual filtering step.

2. (Previously presented) The method according to Claim 1, further comprising the step of applying each of the preceding steps to a source image and to the decoded image.

3. (Previously presented) The method according to Claim 1, further comprising the step of frequency decomposing the images which precedes the psychovisual filtering step and includes the step of weighting by a coefficient deduced from curves taking into account the estimated velocity and the frequency band considered, so as to take account of the relative influence of the velocity and of the spatial frequency on the perception of the moving images.

4. (Currently amended) The method according to Claim 1, wherein the psychovisual filtering step is applied to matrices representative of the inter-pyramid differences between the Laplace pyramids of processed source images and those of the processed decoded images after weighting by~~, on the one hand,~~ the local influence representative of the frequency of the pixel, p_i, concerned and~~, on the other hand,~~ a filtering coefficient deduced from filtering curves taking into account the estimated velocity and the frequency band corresponding to the level of the Laplace pyramid to which the pixel belongs in a multiresolution pyramid obtained by constructing a pyramid on the basis of the image of each region of different velocity.

5. (Currently amended) The method according to Claim 1, wherein psychovisual filtering curves are either ~~built~~derived from a succession of curves arranged in the form of a database and stored in the system~~, and possibly interpolation on the basis of these curves,~~ or obtained by analytical representation implemented by calculation means making it possible to calculate each curve.

6. (Previously presented) The method according to Claim 4, wherein the step of constructing the map of disparities is performed by recomposing the filtered multiresolution pyramids obtained in the preceding step.

7. (Previously presented) The method according to Claim 4, wherein the step of processing the image includes the steps of

decomposing source and decoded images into a Laplace pyramid of n levels and

constructing the inter-pyramid difference.

8. (Previously presented) The method according to Claim 1, wherein the velocity or local value of the motion is obtained by possible construction of filters followed by application of the filter constructed or by application of a median filter.

9. (Previously presented) The method according to Claim 1, further comprising the step of precorrecting the images by performing a Gamma correction and a correction by Weber's law.

10. (Previously presented) The method according to Claim 9, wherein the Gamma correction is performed in accordance with:

$$y = K_S V^{\gamma_S} \text{ with } V = k_a E^{\gamma_a}$$

in which y is the luminance, V the luminance voltage, E the illumination of the illumination analysed image, γ_S is an exponent of around 2.2 for black and white picture tubes and γ_a has a value of 0.45 commonly agreed for colour television.

11. (Previously presented) The method according to Claim 1, wherein the psychovisual filtering step includes the steps of

constructing the psychovisual filter corresponding to the velocity estimated on the basis of a database of filters and

interpolating between two filters corresponding to the regions closest to the region whose velocity has been estimated.

12. (Previously presented) The method according to Claim 4, wherein the relative local influence (I_n) of the pixel p_i concerned is obtained by calculating a value E_n representing the q^{th} power of the inter-pyramid level-to-level difference between the source pyramids and decoded pyramids of like level of the pixel concerned.

13. (Previously presented) The method according to Claim 12, wherein the calculation of I_n is performed by using the following formula:

$$I_n = \frac{E_n}{\sum_{k<n} m(E_k)}$$

with $E_n = (Diff_n(p_{ij}))^q$

$m(E_k) = E_k$ if $E_k > S$

and $m(E_k) = S$ if $E_k < S$

with for example $S = 0.5\%$ (maximum possible value of E_k).

14. (Previously presented) The method according to Claim 4, wherein the psychovisual filtering includes the step of directional filtering the images in a determined direction rather than in another.

15. (Previously presented) The method according to Claim 9, wherein the Gamma correction is performed by a calculation device implementing the following equation:

$$L_{display} = L_{\max}\left(\frac{e}{e_{\max}}\right)^{\gamma}$$

e being the grid level value of the pixel, e_m being the maximum value example 256 if the coding is performed on 8 bits, L_{max} being the intensity corresponding to e_{max} in cd/m^2.

16. (Previously presented) The method according to Claim 9, wherein Weber's law is implemented by a calculation device which carries out the following function:

$$V_{out} = \frac{L_{\max}}{2} Log_{10}\left(1 + 100\frac{L_{display}}{L_{\max}}\right)$$

17. (Previously presented) The method according to Claim 1, wherein the calculation of the psychovisual filter is obtained through the following formula:

$$G(\alpha, v) = [6.1 + 7.3|\log(v/3)|^3] \times v\alpha^2 \exp[-2\alpha(v+2)/4.59]$$

with $\alpha = 2\pi f$, f = spatial frequency, v = velocity.

18. (Previously presented) The method according to Claim 1, further comprising the step of coding the image such that the coding is modified by retroacting the measurement of disparities on a coding parameter.

19. (Previously presented) The method according to Claim 18, wherein the calculated disparities are compared with a threshold so as to modify coding parameters until the desired threshold is overstepped.

20. (Previously presented) The method according to Claim 19, wherein one of the parameters is either the quantization interval, or the size of the images, or the form of the group of pictures *GOP*.

21. (Previously presented) The method according to Claim 18, wherein the homogeneity of the calculated disparities is analysed so as to act on the coding parameters.

22. (Previously presented) The method according to Claim 18, wherein the coding parameters of the different objects of an image whose coding is object oriented are modified as a function of a constant desired disparity.

23. (Previously presented) The method according to Claim 18, further comprising the step of performing a dynamic reallocation of bit rates allocated to a coding apparatus with multiplexing.

24. (Previously presented) A device for evaluating the quality of coded images, the device comprising:

means for processing a signal representative of a source image and of a decoded image so as to obtain a processed source image signal and a processed decoded image signal,

means for constructing on the basis of the signal representative of each of the images, a signal representative of the estimating of the field of motion on the basis of each of the images of the source and decoded sequences,

means for building a signal representative of the segmenting of the field of motion and of storing the image pixels representative of each region R_i having a different field of motion at an address defined with respect to the velocity vectors estimated in the step of constructing the field of motion making it possible to determine for each of the source and decoded images those having different velocity vectors,

a means for determining a psychovisual human filter to be applied as a function of the estimated velocity of the region,

means for psychovisual filtering applied to each of the processed source images and processed decoded images and

means for constructing a map of disparities between the signals representative of the processed source image which are obtained after the filtering and the signals representative of the processed decoded image which are obtained after the filtering.

25. (Currently amended) The device according to Claim 24, wherein the psychovisual filtering means are applied to matrices representative of the inter-pyramid differences calculated by the determination means between the Laplace pyramids of the processed source images and those of the processed decoded images after weighting by~~, on the one hand,~~ the local influence representative of the frequency of the pixel concerned and~~, on the other hand,~~ a filtering coefficient - deduced from stored or calculated filtering-curves and taking into account the estimated velocity and the frequency band corresponding to the level of the Laplace pyramid to which the pixel belongs in a multiresolution pyramid obtained by means

for constructing this multiresolution pyramid on the basis of the image of each region of different velocity.

26. (Previously presented) The device according to Claim 24, wherein the means for constructing the map of disparities performs a recomposition of the filtered multiresolution pyramids.

27. (Previously presented) The device according to one of Claim 24, wherein the means for processing, the means for building, the means for determining, the means for constructing, the means for filtering comprise at least one microprocessor associated with memories sufficient to contain programs for embodying the various means and to contain databases and intermediate information necessary for the calculation and for obtaining the map of disparities.

28. (Previously presented) The method according to Claim 1, the images being coded according to the MPEG standard, wherein the step of constructing a signal representative of the field of motion image exploits the per-macroblock motion vectors calculated during the coding of the images according to the MPEG standard.

29. (Previously presented) The method according to Claim 1, wherein the decoded image is a noisy source image constructed on the basis of the source image to which white noise is added.

30. (Previously presented) The method according to Claim 29 further comprising the steps of

predicting, on the basis of the map of disparities, the regions most sensitive "a priori" to the coding errors and

coding the regions as a function of this prediction.

31. (Previously presented) The method according to Claim 29 further comprising the step of prefiltering a source images as a function of the map of disparities.

32. (Previously presented) The method according to Claim 29 further comprising the step of determining locally the amount of information which can be inserted into the images (Watermarking) without this addition being perceptible.